



UNITED STATES PATENT AND TRADEMARK OFFICE

A

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/823,323

04/13/2004

Brent J. Bos

DON01 P-1149

4501

28101

7590

02/06/2006

VAN DYKE, GARDNER, LINN AND BURKHART, LLP
2851 CHARLEVOIX DRIVE, S.E.
P.O. BOX 888695
GRAND RAPIDS, MI 49588-8695

EXAMINER

LIVEDALEN, BRIAN J

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 02/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/823,323	Applicant(s) BOS ET AL.	
	Examiner Brian J. Livedalen	Art Unit 2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 103-133 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 103-126 and 129-133 is/are rejected.
- 7) ☒ Claim(s) 127 and 128 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/13/2004</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Information Disclosure Statement

Application number 09/441341 is not considered because it is unavailable for review.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 103-105, 107-120, 125, 126, and 129 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bechtel et al. (5537003) in view of Bechtel (5204778), hereinafter referred to as Bechtel '778, in view of Vachss (5313072).

In regard to claims 103, Bechtel discloses (fig. 1) an interior rearview mirror system suitable for use in a vehicle, the interior rearview mirror system having an interior rearview mirror assembly (103) adapted for attachment to an interior portion of the vehicle (102), the interior rearview mirror assembly is adjustable to ambient light (column 28, lines 60-65); a headlamp control responsive to an output signal of the imaging sensor (fig. 2, 1), the headlamp control being operable to control a headlamp of

the vehicle in response to the output signal (column 12, lines 62-67). Bechtel fails to disclose the ambient light sensitive mirror to be an electrochromic mirror. However, Bechtel '778 discloses an electrochromic reflective element and electronic circuitry operable to control the electrochromic reflective element (abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use an electrochromic mirror in order to most effectively dim the mirror. Bechtel in view of Bechtel '778 teaches using the same controller to output to different devices (column 28, lines 60-65), but fails to disclose one of those devices being a rain sensor that controls windshield wipers. However, Vachss discloses (fig. 1) an imaging sensor (18a-18e) that is used to control windshield wipers (column 1, line 60 – column 2, line 14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a rain sensor that controls windshield wipers using the some of the same circuitry of the headlamp sensor in order to increase the automation of the vehicle in the most inexpensive way.

In regard to claim 104, Bechtel further discloses (fig. 1) the imaging sensor being positioned at or near the interior rearview mirror assembly having a field of view forward and through a windshield of the vehicle (column 15, lines 4-8).

In regard to claims 105, 107, Vachss discloses the rain sensor being operable in response to the output signal from the first imaging sensor (column 1, line 60 – column 2, line 14), and the headlamp control being operable to an output signal from the second imaging sensor (Bechtel, abstract); the second imaging sensor facing the front windshield.

In regard to claim 108, Bechtel further discloses a portion of the circuitry being on a circuit board (column 15, lines 47-50).

In regard to claims 109-114, Bechtel further discloses a display element, which functions as a vehicle status display that provides at least two functions that is able to switch between at least two functions in response to at least one of a voice command, a user input, a timing device and a vehicle status change (column 28, lines 50-52). Note examiner interprets indicator lights as a display element that is able to indicate when system is on and off and is operable by the control interface.

In regard to claim 115, Bechtel further discloses the headlamp control being operable to control a headlamp of the vehicle in response to a level of light present at the windshield (column 15, lines 37-43).

In regard to claims 116-120, Vachss discloses the rain sensor control being operable to process the output signal to detect water droplets at the exterior surface of the window and fog particles at the interior surface of the window and controlling the rate of a windshield wiper in response to the amount of water droplets and controlling a defogging system of the vehicle in response to the presence of fog particles at the interior surface of the window (column 3, lines 25-35, column 4, lines 5-21).

In regard to claims 125 and 126, Bechtel in view of Bechtel '778 fails to disclose a source of illumination. However, Vachss discloses (fig. 1) an illumination source (12) for illuminating part of the field of view of the imaging sensor and being at least occasionally activated (column 2, lines 27-35). It would have been obvious to one of

ordinary skill in the art at the time the invention was made to incorporate an illumination source in order to more accurately detect the obscuration on the windshield.

In regard to claim 129, Bechtel discloses the imaging array sensor has a pixilated imaging sensor array (column 36, lines 30-35).

Claim 106 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bechtel et al. (5537003) in view of Bechtel '778 and Vachss (5313072) as applied to claims 105, and in further view of Bendicks et al. (5498866).

In regard to claim 106, Bechtel in view of Bechtel '778 and Vachss discloses a system with a rain sensor. Bechtel in view of Bechtel '778 and Vachss fails to disclose the imaging sensor for operation with the rain sensor having a field of view through a rear window of the vehicle. However, Bendicks teaches that it is common to image the rear window to detect rain (column 1, lines 14-20). It would have been obvious to one of ordinary skill in the art at the time the invention was made to image a field of view through a rear window in order to control a windshield wiper on the back window.

Claims 121-124 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bechtel et al. (5537003) in view of Bechtel '778 and Vachss (5313072) as applied to claim 119, and in further view of Shiraishi (4881019).

In regard to claims 121-124, Bechtel in view of Bechtel '778 and Vachss discloses a system with which controls a front windshield wiper. Bechtel in view of Bechtel '778 and Vachss fails to disclose also controlling a back windshield wiper as a

Art Unit: 2878

function of the front windshield wiper. However, Shiraishi discloses (fig. 1) a control operable to control a back windshield wiper in response to detection of water droplets at the exterior surface of the windshield and controlling the back windshield wiper to cycle for every N cycles of front windshield wiper wherein the value of N varies as a function of the speed of the windshield wiper (column 12, lines 59-68). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a back windshield wiper control in order to effectively maintain a clear back windshield using the most efficient speed.

Claim 130 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bechtel et al. (5537003) in view of Bechtel '778 and Vachss (5313072) as applied to claim 129, and in further view of Kobayashi et al. (5426294).

In regard to claim 130, Bechtel in view of Bechtel '778 and Vachss discloses a system with an imaging sensor. Bechtel in view of Bechtel '778 and Vachss fails to disclose the imaging sensor being a CCD sensor. However, Kobayashi discloses (fig. 14) a rearview mirror system with a CCD sensor (column 2, lines 37-40). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a CCD sensor in order to inexpensively image the windshield.

Claim 131 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bechtel et al. (5537003) in view of Bechtel '778 and Vachss (5313072) as applied to claim 103, and in further view of Kiyomoto et al. (5844682).

In regard to claim 131, Bechtel in view of Bechtel '778 and Vachss discloses a system with an imaging sensor. Bechtel in view of Bechtel '778 and Vachss fails to disclose the imaging sensor having a polarizing filter. However, Kiyomoto discloses placing a polarizing filter in front of a receiving element in a rain detection apparatus (column 28, lines 25-38). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a polarizing filter in front of the receiving element in order to more accurately detect the reflected light and effectively eliminate errors due to the surface of the windshield.

Claim 132 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bechtel et al. (5537003) in view of Bechtel '778 and Vachss (5313072) as applied to claim 103, and in further view of Levers (5276389).

In regard to claim 132, Bechtel in view of Bechtel '778 and Vachss discloses a system with an imaging sensor. Bechtel in view of Bechtel '778 and Vachss fails to disclose that the rain sensor control is operable to apply an edge detection algorithm to the output signal to detect edges of rain droplets on a surface of a window. However, Lever discloses (fig. 5) a rain sensor with an edge detection algorithm used for detecting edges of rain droplets (column 10, lines 12-30). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply a edge detection algorithm in order to more accurately detect the amount of rain on the windshield.

Claim 133 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bechtel et al. (5537003) in view of Bechtel '778 and Vachss (5313072) as applied to claim 103, and in further view of Teder (5568027)

In regard to claim 133, Bechtel in view of Bechtel '778 and Vachss discloses a system with an imaging sensor. Bechtel in view of Bechtel '778 and Vachss fails to disclose that the rain sensor control is operable to apply a filtering or smoothing algorithm to the output signal to reduce the effects of scratches on the window of the vehicle. However, Teder teaches using a filtering or smoothing algorithm to the output signal to reduce the effects of scratches on the window of the vehicle (column 3, line 63 – column 4, line 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a filtering algorithm in order to reduce unwanted noise resulting from defects.

Allowable Subject Matter

Claim 127 and 128 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to anticipate or make obvious claims 127 and 128.

In regard to claims 127, and 128, the prior art fails to disclose an imaging system that controls a mirror, headlights, and windshield wipers that also has an illumination source that is sensitive to the lighting conditions.

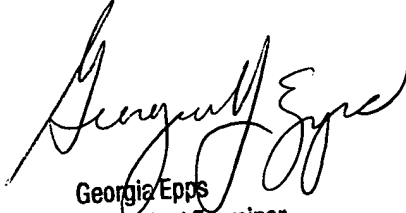
In regard to claims 127, and 128, the prior art fails to disclose an imaging system that controls a mirror, headlights, and windshield wipers that also has an illumination source that is sensitive to the lighting conditions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Livedalen whose telephone number is (571) 272-2715. The examiner can normally be reached on 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

bjl



Georgia Epps
Supervisory Patent Examiner
Technology Center 2800